

WHEEL-LIKE WIRE HOLDER



## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

5 [0001] The present invention relates to a wheel-like wire holder for holding a live high-voltage wire at an isolating central space, which is inaccessible to any surrounding wire or parts.

### 2. Related Art

[0002] In a certain electric appliance such as a television receiver, a plurality of electric wires 10 are used to apply electromotive force of high-frequency and/or high-voltage to some selected parts, and then such live wires need to be isolated from surrounding electric wires and parts so that no adverse effects or interference may be caused thereon. To assure that such live high-voltage or high-frequency wires are kept apart from the surrounding wires and parts, a variety of wire holders are used. One example of such a wire holder is shown in JP 5-85082(U), titled "Electric Wire Holder".

15 [0003] This wire holder looks like a wheel, comprising a ring, a central hub, two bifurcate spokes and one split-spoke connecting the central hub to the ring. The central hub defines a central space to allow a high-voltage lead wire to fit therein, and the ring cuts off access to the high-voltage lead wire, which is press-fitted in the central hub. The central hub consists of three solid cylinders arranged circularly and separated an equi-angular distance from each other. The two bifurcate spokes 20 and the split-spoke connect each two adjacent cylinders to an inner circumference of the ring. The ring has a cut to define a loophole. The split-spoke connects selected two adjacent cylinders to confronting edges of the loophole, thus defining a radial passage to the hub space. Specifically, the radial passage is defined by confronting, outwardly-diverging radial pieces of the split-spoke, thereby allowing an electric lead wire to follow the radial passage and fit in the hub space.

25 [0004] Referring to fig.4, such a wire holder 3 holds an anode lead wire 2 extending to a flyback transformer 1, thereby preventing any surrounding wire from coming close to this live high-voltage lead wire 2. The anode lead wire 2 is inserted from loophole 4 into central hub space 5. Disadvantageously, however, this wire holder structure permits another lead wire to invade through the loophole 4 and come close to the high-voltage wire 2. Still disadvantageously, the wire holder can 30 easily slide along the high-voltage lead wire 2, and thus, it cannot guarantee that an isolating central space is inaccessible to any surrounding wire.

[0005] With a view to keep a nearby wire apart from the live high-voltage lead wire, the

nearby wire is bounded to the ring with a binding wire. This binding work, however, is troublesome, and the unbinding is troublesome, too. Use of binding wires increases cost.

[0006] In view of the above one object of the present invention is to provide a wheel-like wire holder which is capable of keeping a high-voltage wire apart from its surroundings , and of holding 5 another lead wire apart from the high-voltage wire.

## SUMMARY OF THE INVENTION

[0007] To attain this object a wheel-like wire holder comprises a ring, a central hub, and a plurality of spokes connecting the central hub to the ring. The central hub defines a central space to 10 allow a high-voltage lead wire to fit therein. This wire holder is improved in that the ring and hub have cuts on their circumferences, which cuts are connected by two spokes to define a radial passage for the central space to communicate with an exterior of the ring. The cut of the ring is adapted to be open and closed, and the ring has an extra space defined next to the cut for accommodating another lead wire thereinside. The extra space is also adapted to be open and closed.

[0008] The central space of the central hub and the radial passage may form a loophole defined by opposite ends of the two spokes radially extended toward the ring, with one of these spokes reaching short of the ring and being bent to provide a sub-spoke, which is connected the ring to define 15 the extra space, whereas the other spoke is connected to the ring and has a barrier piece projecting toward the extra space, thereby blocking access to the central hub.

[0009] The ring may have fastening pieces formed on confronting ends of its cut to close and 20 open the loophole.

[0010] Other objects and advantages of the present invention will be understood from the following description of a wheel-like wire holder according to one preferred embodiment of the present invention, which is shown in accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Fig.1 illustrates a wheel-like wire holder according to the present invention with its loophole open;

[0012] Fig.2 illustrates the wheel-like wire holder with its loophole closed;

[0013] Fig.3 illustrates the wheel-like wire holder with a high-voltage lead wire fit thereto, and 30 some lead wires contained in an extra space; and

[0014] Fig.4 illustrates a conventional wheel-like wire holder holding an anode lead wire in a

television receiver.

## **DETAILED DESCRIPTION OF PREFERRED EMBODIMENT**

[0015] Referring to Fig.1, a wheel-like wire holder according to one embodiment of the present invention comprises a ring 11, a central hub 12, and a plurality of spokes 13, 13; 14a, 14b and 15a and 15b. These spokes connect the central hub 12 to the ring 11. The spokes 14a and 14b somewhat diverge outwardly to define a sector space 16 therebetween. Likewise, the spokes 15a and 15b somewhat diverge outwardly to define a sector space 17 therebetween. As seen from the drawing, these sector spaces 16 and 17 extend radially from central hub space 23 to the ring 11. The central hub space 23 and the sector space 17 form a loophole defined by opposite ends of the two spokes 15a, 15b radially extended toward the ring. The ring 11 is cut at two points between the spokes 14a and 14b, as well as between the spokes 15a and 15b, respectively, so that the sector spaces 16 and 17 are communicated with an exterior of the ring.

[0016] The central hub space 23 communicates with the sector space 17, and the sector space 17 increases or decreases with deformation of the hub space 23. Likewise, the sector space 16 varies in size. The spoke 15a reaches short of the ring 11, and is bent to provide a sub-spoke 18, which is connected to the ring 11 to define a generally triangular or extra space 19 between the sub-spoke 18 and the ring 11.

[0017] The spoke 15b is connected to the ring 11. Thus, the spokes 15a and 15b define a radial passage accessible from the exterior of the ring 11 to the central space 23. Also, the spoke 15b has a barrier piece 20 projecting toward the generally triangular space 19, thereby cutting off access to the central hub space 23. The ring 11 has fastening pieces 21 and 22 formed on confronting ends of the cut to close and open the loophole (23 and 17). The fastening pieces are a hook 21 and a projection 22 to engage with each other (see Figs.1 and 2).

[0018] Fig.2 shows the wheel-like holder with the sector space 17 closed and with the sector space 16 open. In a closing position the fastening pieces 21 and 22 are caught by each other. Referring to Fig.3, the generally triangular space 19 is closed with other wires 25 contained therein. Such extra wires 25 cannot come close to a high-voltage wire 24 at the central hub space 23.

[0019] This high-voltage lead wire 24 is inserted from the loophole of the ring 11 to follow the sector passage 17 to the central hub space 23. Referring to Fig.3 again, the high-voltage lead wire 24 is press-fitted in the hub space 23, and the loophole is closed to change a shape of the hub 12, thereby reducing the central hub space 23 to tightly hold the high-voltage lead wire 24. Thus, the wheel-like

wire holder is firmly fastened to the high-voltage lead wire 24, and it cannot slide along a surface of the high-voltage lead wire. Nearby lead wires 25 are confined in the generally triangular or extra space 19.

[0020] The wheel-like wire holder provides advantages as follows:

5 no lead wires are allowed to come close to a high-voltage lead wire once confined in the hub space;

access to the central hub space is blocked by the barrier piece, thereby preventing inadvertent insertion of another lead wire into the central hub space while it is being put into the generally triangular or extra space 19; and

10 closure of the loophole with the fastening pieces caught together causes the high-voltage lead wire to be tightly squeezed in the central hub space, thereby assuring that the wire holder is prevented from sliding along and departing from the high-voltage lead wire.